Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

April 8, 2013 **BY EMAIL**

Shelly Bonte-Gelok
Standards Development Branch
Ministry of the Environment
40 St. Clair Avenue West, Floor 7
Toronto, Ontario
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Dear Ms. Bonte-Gelok:

RE: DRAFT MANUAL - *TEST HOLES AND DEWATERING WELLS: REQUIREMENTS AND BEST MANAGEMENT PRACTICES*
EBR REGISTRY NO. 011-5722

On behalf of the Canadian Environmental Law Association ("CELA"), I am writing to provide CELA's comments on the draft version of the manual entitled *Test Holes and Dewatering Wells: Requirements and Best Management Practices* ("the manual").

This submission is being sent to the Ministry of the Environment ("MOE") in accordance with the above-noted EBR Registry notice for this proposal.

BACKGROUND

CELA is a public interest law group founded in 1970 for the purposes of using and improving laws to protect the environment and human health.

Over the past four decades, CELA has focused much of its casework and law reform efforts on safeguarding the quality and quantity of surface water and groundwater resources. For example, CELA participated as counsel for Walkerton residents during the Walkerton Inquiry, which was held after seven people died, and thousands were sickened, after drinking contaminated water drawn from a municipal well in May 2000.

Over the past decade, CELA has also been proactively involved in the development of Regulation 903 under the *Ontario Water Resources Act* ("OWRA"), which sets out provincial standards for wells across the province.

In November 2003, for example, CELA filed an EBR Application for Review of Regulation 903 (as amended earlier in 2003), and CELA participated in the Ontario Drinking Water Advisory Council's review of well disinfection requirements in 2005. In 2007, CELA commented on the MOE's proposed further changes to Regulation 903. Similarly, when the MOE developed the

much-anticipated manual for water supply wells in 2008, CELA was part of an external stakeholder review group that commented on the content of the manual.

More recently, CELA has corresponded with the Minister of the Environment, MOE staff and the Environmental Commissioner of Ontario in 2011 and 2012 about the pressing need for a similar (and long-promised) manual in relation to test holes and dewatering wells in Ontario.

GENERAL COMMENTS ON THE MANUAL

(i) The Need for the Long Overdue Manual

Tens of thousands of test holes and dewatering wells are drilled each year in Ontario at sites such as brownfields, landfills, quarries, roadways, and even near municipal water supply wells. If not properly located, constructed or decommissioned, these wells can serve as pathways for contaminants to enter aquifers, or for subsurface contaminants to discharge to surface.

Unfortunately, after changes were made to Regulation 903 in 2003 (and again in 2007), there has been an unreasonable delay by the MOE in promulgating an appropriate manual for persons drilling or owning test holes or dewatering wells across Ontario. CELA is unaware of any compelling legal or technical reason why it has taken the Ministry approximately 10 years to complete the proposed manual. As a practical matter, this inordinate delay has meant that there have been few detailed technical directions from the MOE on how well drillers or owners can meet the many complicated requirements and exemptions specified in Regulation 903, or how to implement best management practices to further protect the environment and human health.

Accordingly, CELA strongly recommends that the draft manual should be finalized and promulgated as soon as possible. However, we have identified a number of gaps, deficiencies and other problems within the manual which should be considered and addressed by the Ministry as it finetunes the content of the manual. For the reasons described below, CELA is also recommending that the existing Water Supply Wells manual should also be updated as soon as possible. Our specific comments, questions and suggested improvements regarding the test holes manual are set out in the attached commentary.

(ii) Disconnect between Regulation 903 and the Manual

CELA commends the Ministry for finally moving forward with this initiative, and thanks the Ministry for soliciting our input on the draft manual. However, after reviewing the manual in detail, and after considering the current provisions of Regulation 903, CELA concludes that there are several overarching themes and broader legal issues which require further action by the Ministry beyond merely finalizing the manual.

In particular, CELA notes the MOE statement in the EBR Registry notice that the test holes manual is an important part of the MOE's "multiple barrier source protection strategy," and is intended to "assist stakeholders in understanding legislative requirements and best management practices that help protect Ontario's water resources now and in the future." In this regard, the EBR Registry notice further states the manual will provide "a plain language summary of the

Wells Regulation (O.Reg. 903/90) and other relevant legislation on test holes and dewatering wells."

This strikes CELA as a laudable objective, particularly in light of the convoluted nature of how Regulation 903 applies to test holes and dewatering wells which are caught by – or exempted from – regulatory requirements in Ontario. On this point, CELA notes that Regulation 903 currently includes a complex array of exemptions for test holes and dewatering wells, many of which involve a fair degree of professional judgment or subjective interpretation of local conditions. Accordingly, from a compliance and enforcement perspective, it remains extremely difficult to properly comprehend the provincial standards (and exemptions) in Regulation 903 that apply to test holes and dewatering wells.

More generally, it appears to CELA that in many instances, the draft manual describes best management practices ("BMPs") which are absent from, or are not legally required by, the current wording of Regulation 903. Our review of the manual suggests that these BMPs have been carefully researched and properly referenced, and we support many of the BMPs listed throughout the manual. Nevertheless, CELA concludes that the apparent disconnect between some BMPs and Regulation 903 amply demonstrates the need to review and revise the Regulation itself to ensure that it is effective, enforceable and truly reflective of well-related BMPs.

As a matter of law, the numerous BMPs set out in the test holes manual are not enforceable in and of themselves – only the provincial standards set out in Regulation 903 are enforceable. As discussed in the attached commentary, there are a number of passages where the manual specifies a BMP for which there is no corresponding requirement in Regulation 903, and for which there is no legal remedy if there is non-compliance.

Accordingly, please be advised that under separate cover, CELA intends to file an updated EBR Application for Review of Regulation 903. We recognize and appreciate that the MOE has invested a considerable amount of research and writing effort into the preparation of the draft manual. However, we must question whether the MOE's time and resources would have been better spent updating and strengthening Regulation 903, particularly in relation to well construction and design issues.

CELA is also concerned about certain BMPs outlined in the manual which appear to contravene, or seem to be inconsistent with, current legal requirements (or exemptions) under Regulation 903. Such conflicts inevitably create policy ambiguity, operational uncertainty and enforcement difficulty. As described below, examples of these inconsistencies include:

- allowing the use of unsealed concrete tiles as well screens;

- creating exemptions from annular space requirements for multi-level wells or wells that exist for less than 180 days;

- creating exemptions for casings for wells that exist for less than 30 days;

- allowing flush-mounted well covers;

- placing well tags on wells but not requiring well records;

- prohibiting the tagging of other wells if the original tag in a well cluster is removed due to abandonment;

- allowing the lack of well records and tagging for all test holes and dewatering wells; and

- imposing abandonment requirements on well owners, but not on the drillers who abandon the wells.

It is CELA's understanding that the numerous exemptions for test holes and dewatering wells under Regulation 903 are intended to allow professional discretion in designing and constructing holes intended to sample or test groundwater. If problems are experienced, then the well must be abandoned in accordance with provincial standards.

Assuming that this accurately summarizes the MOE's rationale for creating so many test hole exemptions in Regulation 903, CELA submits that this *laissez-faire* approach is at odds with the overall public interest objective of preventing groundwater problems in the first place by requiring upfront adherence to prescribed well construction, design and material standards during the initial well construction phase. In addition, the *ex post facto* remedy of abandoning a problematic test hole after it has already been constructed imposes additional burdens upon the well owner, who not only is deprived of using the well for its intended purpose, but who also will incur extra expense in abandonment procedures.

(iii) Relationship between Regulation 903 and O.Reg. 153/04

After our 2003 EBR Application for Review of Regulation 903 was unjustifiably refused by the MOE, CELA understood that no significant well construction changes to Regulation 903 would occur. However, test hole construction requirements were then added by the MOE to O.Reg.153/04, which regulates site assessments and Records of Site Condition at brownfield properties pursuant to Part XV.1 of the *Environmental Protection Act* ("EPA").

Even with a well-written manual, it is unduly confusing and ultimately counterproductive to bifurcate test hole requirements by splitting them between two different regulations under two different statutes. This problem is compounded by some apparent inconsistencies or contradictions between the standards prescribed by Regulation 903 and O.Reg.153/04, as outlined below. In addition, the well construction standards for test holes under Regulation 903 appear to apply to well technicians, whereas the well construction standards under O.Reg.153/04 appear to apply to certain professionals (i.e. "qualified persons").

In our view, it is far more preferable to house all provincial well standards under the OWRA, which was specifically enacted to safeguard Ontario's groundwater and surface water resources. If it is legally necessary or technically appropriate to promulgate different standards for different types of wells, then this can be accomplished by creating different parts (or schedules) within

Regulation 903, or alternatively, by creating a new, stand-alone regulation for test holes and dewatering wells under the OWRA. CELA submits that reducing the current regulatory maze by consolidating all well standards under the OWRA represents sound public policy and should promote greater understanding of (and compliance with) provincial standards by well drillers, well owners and other stakeholders.

(iv) The Need to Update the Water Supply Wells Manual

While the test holes manual is being finalized by the MOE, CELA submits that there is a corresponding need for the MOE to review and update the existing Water Supply Wells manual.

For example, some well-related terminology has been clarified or changed within the draft test holes manual, and consequential amendments to the Water Supply Wells manual would be helpful to ensure overall consistency. Similarly, after the Water Supply Wells manual was completed several years ago, the MOE amended Regulation 903 to add new regulatory requirements for licencing out-of-province individuals. This matter is addressed in the draft test holes manual, but is absent from the Water Supply Wells manual. In addition, there are changes in the annular space chapter of the test holes manual which should also be reflected in the Water Supply Wells manual.

In our view, these inconsistencies are not minor semantic issues; instead, they go directly to the MOE's ability to ensure compliance with the provincial standards in Regulation 903. In short, if there are differences in the wording of the two manuals in relation to the same topic (or if differing interpretations are possible based upon the two manuals), then the wells industry may have difficulty understanding the MOE's expectations, and the MOE may encounter difficulty in enforcing Regulation 903 in such circumstances. CELA submits that these kinds of interpretive and enforcement difficulties can be easily avoided (or at least minimized) if the two manuals are reviewed and revised to ensure that they both provide clear and consistent information.

Ideally, the finalized content of both manuals should be published and released at the same time in the coming months in order to ensure regulatory certainty, clarity and coordination. For the purposes of soliciting stakeholder input on proposed changes to the Water Supply Wells manual, CELA suggests that the proposed changes should be posted on the EBR Registry for a 30 or 45 day period for public review/comment.

CONCLUSIONS

For the foregoing reasons, CELA concludes that the draft manual represents a solid step forward in terms of clarifying and explaining regulatory requirements that apply to test holes and dewatering wells in Ontario.

However, as discussed below in more detail, CELA has identified various opportunities to improve and expand upon the explanatory provisions of the draft manual, particularly in instances where there is no apparent linkage between the provincial standards and BMPs suggested in the manual. At the same time, CELA strongly submits that the MOE must take

additional steps, such as reviewing and updating Regulation 903 itself, rather than merely tinkering with the wording, figures or formatting within the draft manual.

Please feel free to contact the undersigned if you have any questions or comments about this submission.

Yours truly,

CANADIAN ENVIRONMENTAL LAW ASSOCIATION

Richard D. Lindgren
Counsel

cc. The Hon. James Bradley, Minister of the Environment
Gord Miller, Environmental Commissioner of Ontario

CELA'S COMMENTS ON *TEST HOLES AND DEWATERING WELLS: REQUIREMENTS AND BEST MANAGEMENT PRACTICES*

Prepared by
Richard D. Lindgren, Counsel
Canadian Environmental Law Association
(April 8, 2013)

INTRODUCTION

These are the comments of the Canadian Environmental Law Association ("CELA") in relation to the draft manual entitled *Test Holes and Dewatering Wells: Requirements and Best Management Practices* ("the manual").

This manual has been prepared by the Ministry of the Environment ("MOE"), and has been released for public review and comment. According to EBR Registry No. 011-5722, the overall intent of the manual is to "provide best practices and greater clarity for industry and well owners in understanding the Wells Regulation and other relevant legislation that deals with wells, and to offer best management practices that help to protect Ontario's water resources now and in the future."

In reviewing the draft manual, CELA considered a number of factors, including:

- is the text reasonably clear, concise and readable?

- does the manual accurately summarize the legal requirements under Regulation 903?

- does the manual provide useful recommendations or appropriate best management practices ("BMPs") for environmental protection purposes?

- are there any significant gaps, errors or omissions in the manual that should be corrected?

Subject to the comments below, CELA is generally satisfied with the overall structure, format and content of the draft manual, although there are certain textual changes that we would recommend in order to improve and clarify the manual. In addition, we have identified some copy edits for the MOE's consideration. Provided that our substantive comments are satisfactorily addressed by the MOE, CELA anticipates that the finalized manual will provide informative and user-friendly guidance on how to comply with provincial standards set out in Regulation 903 regarding test holes and dewatering wells.

SPECIFIC COMMENTS

To assist the MOE in its review of this submission, the following comments, questions and recommendations by CELA have been organized on a chronological chapter-by-chapter basis.

Chapter 1: Introduction

CELA's specific comments on Chapter 1 may be summarized as follows:

- Page 12, 3rd bullet: add "and public safety" after "protection of human health";

- Pages 14: if test hole construction requirements are going to remain addressed by O.Reg. 153/04, then an overview of this regulation should be provided in addition to the Chapter's overview of Regulation 903;

- Page 15, 3rd paragraph: add "and other legislation related to wells" after "Wells Regulation";

- Page 16: the second-last paragraph (excerpt from subsection 22(4) of O.Reg.153/04) appears to be misaligned.

Chapter 2: Definitions & Clarifications

This Chapter provides critically important definitions and "clarifications" of words, phrases and concepts used in the remainder of the manual. At the outset, CELA submits that is incumbent upon the MOE to ensure that these terms are defined consistently in both the test holes manual and the Water Supply Wells manual in order to avoid ambiguity or conflicting interpretations. In addition, where new terms are being defined in the test holes manual (i.e. "authorizing certificate"), the same definitions should be added to the Water Supply Wells manual. Both manuals should be revised, published and released together as soon as possible.

CELA's specific comments on Chapter 2 may be summarized as follows:

- Title of Table 2-1: add "Terms and" to the beginning of the title;

- Table 2-1, definition of "mineralized water": CELA has no objection to the definition for this term, but the manual itself is unclear whether a person is supposed to sample the water to determine if it is, in fact, "mineralized water" within the meaning of the Table 2-1 definition. Thus, CELA questions whether the manual should include a BMP recommending that well drillers test the water to ascertain if it is mineralized;

- Table 2-1, clarification of "natural environment": CELA suggests that consideration be given to further clarifying when structures, buildings or indoor environments are – or are not – part of the "natural environment" definition for the purposes of the manual;

- Table 2-1, clarification of "sealant": CELA submits that part (b) of the sealant definition requires additional clarification. Is the material referred to in part (b) supposed to form a watertight barrier that equals a 20% bentonite/water mixture when it is still in the form of a slurry, or when the mixture has cured?

- Table 2-1, clarification of "test hole": CELA submits that clarification is required to address the following question: can a well that is used for industrial, commercial or geothermal purposes where some testing occurred during construction (i.e. measuring static water level) be considered a "test hole" under Regulation 903 if no one is using the water for drinking purposes? If the answer is "yes", then Table 2-1 needs to clarify this matter, and corresponding changes may be required throughout the manual;

- Table 2-1, clarifications of "well contractor licence" and "well technician licence": It would be helpful to clarify that such licences do not confer authority to undertake well abandonment, and the description of "well abandonment" in Table 2-3 should be cross-referenced;

- Table 2-1, clarification of "well owner": A bullet point is required in the final clause in this clarification;

- Table 2-1, definition and clarification of "wells structural stage completion": CELA submits that the actual term used in Regulation 903 is "structural stage", and the same term should appear in Table 2-1. We further submit that additional clarification is required in relation to this term. For example, if a well goes into operation but the annular space has not yet been filled, is the structural stage incomplete (i.e. the well is not finished), or has a contravention of Regulation 903 occurred? We would suggest that this matter could be addressed by altering the opening sentence of the clarification to read as follows: "In order to complete the structural stage of a new well (or well), the person constructing the well must have completed the following steps…";

- Table 2-2: Some of the defined terms refer to "July 1, 2011" as the start date when certain O.Reg. 153/04 provisions related to wells came into force. CELA submits that this date should be inserted into all terms in Table 2-2 where applicable, and also should be referenced where necessary throughout the manual;

- Table 2-2: definition of "monitoring well": The precise difference between a "monitoring well" and a "test hole" still remains unclear. CELA submits that further clarification (and perhaps illustrative examples) should be provided in relation to "monitoring wells";

- Table 2-2, definition of "qualified persons": It would be helpful to utilize bullet points in the description of this term;

- Table 2-3: CELA submits that the relevant subsection numbers of Regulation 903 should be provided in Table 2-3, just as they appear in Table 2-1;

- Table 2-3: CELA notes that certain key terms (i.e. "unattended" and "previously installed") are used in Chapter 3 (exemptions) and Chapter 4 (licences), but no definitions for these terms appear in Table 2-3. Thus, CELA submits that appropriate definitions of these terms should be added to Table 2-3;

- Table 2-3: CELA submits that the term "person abandoning the well" should be described and clarified. In essence, the definition of this term should be copied from the Chapter 17 discussion of this topic, and it should be clarified that in most instances, this person is the well owner. Similarly, the description of "well abandonment" should outline the various activities discussed in Chapter 17, and should clarify that the "person abandoning the well" is the person responsible for undertaking these activities;

- Table 2-3: CELA submits that the term "new well" should be described and clarified for the purposes of Regulation 903. The description of this term should also be highlighted within Chapters 6 to 9 and 14 of the manual;

- Table 2-3: CELA submits that the term "non-powered" should be described and clarified, and should be linked to Chapters 3 and 17;

- Table 2-3: CELA submits that the term "testing the yield of the well or aquifer" should be described and clarified, and should be linked to the references to this term in Chapter 3 and elsewhere in the manual. This term should also be linked to (or replace) the term "well yield". On this point, CELA notes that the term "well yield" should describe the testing performed under sections 14.9 and 14.10 of Regulation 903, rather than what is currently described for this term in Table 2-3;

- Table 2-3, clarification of "clean": change "April 15, 20111" to April 15, 2011";

- Table 2-3, clarifications of "contaminant" and "contaminated area or site": Read together, these provisions suggest that road de-icing (i.e. application of road salt) would not create a contaminated area, which potentially allows "shallow works" to be constructed in such areas. CELA suggests at the very least, a BMP should be included in Chapter 3 to specify that the "shallow works" exemption does not apply in areas contaminated by road salt;

- Table 2-3, description of "natural gas": CELA has a number of questions arising from the currently worded description. Does natural gas have to actually have potential to cause an environmental problem, or is it reportable at any concentration? If, for example, a person observes bubbles in the water (i.e. methane), but the concentration in the air is not explosive, does the gas have to be reported to the MOE Director? Similarly, if a person detects the rotten egg smell of hydrogen sulphide (but does not know whether the concentration is sufficient to cause an explosion), does the gas have to be reported to the MOE Director? More generally, how is this description (and Chapter 6) related to the requirement under the *Environmental Protection Act* ("EPA") to report explosive gases?

- Table 2-3, description of "potable" water: It appears to CELA that water which "exceeds" limits prescribed by the Drinking Water Quality Standards would be "non-potable" rather than "potable." This description should be changed accordingly (i.e. delete the clause "or exceeds");

- Table 2-3, clarification of "routine repair": CELA submits that further clarification is required to more clearly delineate what is – or is not – "routine" repair or maintenance. Similarly, illustrative bullet point examples should be provided to clearly distinguish between "repair" and "maintenance". For example, does repairing a pump or pumping equipment constitute a "routine repair"? If a pump part fails and is replaced or upgraded, is this an "alteration" or "installing equipment"? Does connecting pump equipment to a well constitute an "alteration", or is it considered to be "connecting to a well"? When does a "repair" become significant enough to be considered as an "alteration"? At what stage does well "alteration" become well "construction"? In CELA's view, further clarity is required in Table 2-3 to address such matters (which should also be further addressed in Chapter 14 of the manual);

- Table 2-3, clarification of "watertight": Since a threaded pipe may not necessarily be "watertight", CELA suggests that this clarification should be amended to refer to the need for rubber washers to make pipe joints truly watertight;

- Table 2-3, description of "weathered bedrock": CELA submits that "basal subsoil" should be further defined or clarified;

- Table 2-3, description of "well opening": It is unclear whether this term only applies during the abandonment of a well, or during other times as well. If it only applies during abandonment, then this should be clarified to avoid potential confusion.

Chapter 3: Exemptions – Wells, Activities & Experienced Professionals

For the purposes of ensuring environmental protection and safeguarding public health and safety, CELA submits that, as general principle, the MOE should only permit licenced persons to be working on wells in Ontario. Accordingly, we believe that it is contrary to this public interest objective to have a licencing regime under Regulation 903 that remains subject to numerous exemptions, exceptions and loopholes. In particular, it defeats the overall intent of the Regulation (and the OWRA) to allow various individuals to inspect, test or sample wells without having to be properly licenced. At the very least, it would be helpful for the manual to include some best management practices to provide some non-binding direction to exempted persons who work on wells across the province.

Similarly, CELA submits that it makes no environmental sense to maintain the sweeping exemption for shallow works under Regulation 903, particularly when shallow dug wells remain subject to the Regulation. If the regulatory goal is to protect aquifers, then it is counterproductive to regulate shallow dug wells – but not shallow works – under Regulation 903.

To address such concerns, CELA submits that Regulation 903 should be systematically reviewed and the public policy basis for the above-noted exemptions should be seriously reconsidered by the MOE.

CELA's specific comments on Chapter 3 may be summarized as follows:

- page 4, "plainly stated – well construction activities": Does "inspecting" the well include removal of the well cap, pump and/or other equipment from the well in order to conduct an inspection? What does the MOE consider to be an "inspection" for the purposes of this exemption? Examples of "inspection" should be provided. CELA further suggests that other examples of exempted equipment should be listed;

- page 5, "shallow works": This chapter (and Chapter 15) should clarify whether a well tag or well record must be provided for shallow works. Alternatively, the manual should specify that providing a well record (or similar documentation) is a BMP for shallow works;

- page 6, "plugging/sealing exempted shallow works": If a test hole is not a shallow works, the manual is unclear on how abandonment responsibilities are imposed (i.e. subsections 21(13) and 21.1 of Regulation 903 generally apply to the well owner, not the well contractor). The phrase "major horizon of soil" should be defined or explained in Chapters 2 and 3. Does a "horizon of soil" constitute a "formation", as that term is used in the manual? If a shallow works is being backfilled with uncontaminated soil, should the soil be compacted? If backfilling with dry bentonite, should a specific type or size be used? Are there some types of bentonite that should not be used for backfilling a shallow works?;

- page 8, "key concepts": It would be helpful to add definitions of "test hole" and "dewatering wells", and to add examples of both (just as the manual does here in relation to "wells"). Would an industrial, commercial or geothermal well that is not used for human drinking water be considered as a "test hole"? Is a test pit for observing groundwater a "test hole" or an exempted well (pond)? If a "trench" has been dug and a number of casings and screens are placed at different locations, and if the trench is then backfilled, is this still a trench or multiple wells? These various situations should be clarified in Chapters 2 and 3;

- page 8, "key concepts": CELA suggests that the MOE consider providing the rationale why certain wells (i.e. ponds) are exempted under Regulation 903 requirements, including licencing. The two bullet point examples of "types of wells" are somewhat ambiguous, and CELA suggests that only one – or the other – example should be retained within the manual;

- page 9, "exemptions – construction activities": Further clarification is required to explain the statement that exempted activities "pose a lower environmental risk";

- page 9, "licencing (well technicians only)": The opening sentence should list exactly which "certain experienced professionals" are exempt (see the "plainly stated" text on page 5 for the list). In addition, the difference between "powered equipment" and "non-powered equipment" should be clarified (i.e. does "non-powered" refer to hand tools that are human-powered rather than gas, electric, or battery-powered?);

- page 13, "BMP – covering shallow works": In CELA's view, this BMP reveals a flaw in Regulation 903 for shallow works, as compared to the construction of other wells. At the very least, this Chapter should include a shallow works BMP that requires construction of the well in accordance with other BMPs for casing, annular space and other construction matters. In the alternative, there should be a BMP requiring the immediate filling in or abandonment of the well in accordance with section 1.1 of Regulation 903. More importantly, the MOE should identify and assess potential solutions for amending the Regulation in a manner that addresses this oversight regarding shallow works;

- page 15, "records of site condition": Despite the current version of Table 2-2 in Chapter 2, the precise meaning of "monitoring well" remains unclear. Illustrative examples (or notes) of monitoring wells should be provided.

Chapter 4: Well Contractors & Well Technicians – Licences, Responsibilities & Exemptions

As noted above, CELA submits that it makes no environmental sense for Regulation 903 to impose licencing standards on persons who construct wells, but then exempt other persons who carry out subsequent well-related activities, including abandonment. For example, there is nothing in Regulation 903 that requires all persons conducting abandonment work to be duly licenced (and insured) well technicians. In practice, this may provide an incentive for inexperienced well owners to plug their own wells. CELA views this differential treatment as a major shortcoming within the current regulatory regime, and we strongly recommend that the MOE must revisit the question of whether – or what extent – licencing exemptions are justifiable under Regulation 903.

CELA also notes that there are penalties for failing to comply with the licencing requirements (and other standards) prescribed under Regulation 903. Accordingly, CELA questions whether a penalty discussion should be contained within Chapter 1.

CELA's specific comments on Chapter 4 may be summarized as follows:

- Table 4-1: Is removing equipment from the well considered to be "well construction", or is this an "alteration"? Is a licence required for removing equipment? If not, then a BMP should be developed for this activity until such time as Regulation 903 is amended to regulate this activity;

- page 16, "BMP – licenced/experienced professionals": In CELA's view, this BMP should be expanded beyond well owners because there are various exempted persons who can undertake well activities (i.e. sampling, testing, inspecting, etc) without a licence under Regulation 903. At the same time, CELA submits that there should be a BMP for well contractors to assess the need for, and quantum of, insurance coverage that should be obtained to address potential liability issues, particularly at large, expensive or complex remediation or construction sites;

- page 22, "continuing education": CELA submits that a BMP should be developed to specify that it is a best practice for well technicians to take more than the minimum amount of courses for their continuing education credits. In addition, CELA suggests that the courses should be directly related to the technicians' field of work within their licencing classification (i.e. it makes little sense for a person who installs equipment in a well to take courses on well construction). Furthermore, since many of these courses can be taken online, CELA recommends that all courses should have exams that are signed and dated by the Director, and that are marked by the Director or his/her designates.

Chapter 5: Siting Considerations & Initial Planning

CELA's specific comments on Chapter 5 may be summarized as follows:

- page 4, "planning well clusters": It appears to CELA that Chapter 5 tends to provide direction on the placement and construction of individual wells, but not clusters of wells. Accordingly, the text of Chapter 5 should specifically address the relevant factors for siting well clusters;

- page 5, "agricultural operations": This discussion is unclear on whether a test hole under the auspices of the *Nutrient Management Act* (or its regulations) is different than a test hole under Regulation 903. For example, can people use water from an agricultural test hole for human consumption? If so, then this situation should be clarified in Chapters 2 and 5;

- page 6, "key concepts": It would be helpful to better define or clarify what is meant by "long-term monitoring wells" and "remediation wells". Should test holes or dewatering wells be placed within buildings? If not, then this matter should be addressed in a BMP. In addition, CELA questions why should test holes and dewatering wells that are exempt from the setback requirements (or other locational constraints, such as low-lying areas) also enjoy an exemption from testing, repairing and inspecting requirements under Regulation 903. What happens if a well is constructed but then cannot be maintained or properly abandoned because the owner cannot fully access the well? In our view, the MOE must revise Regulation 903 in order to revoke these exemptions, and to make these general requirements applicable to all wells, including test holes, dewatering wells and shallow works;

- page 8, "BMP - setback distances": In CELA's view, this BMP should be expanded to mandate consideration of whether the impacts of construction activity itself (i.e. drilling) might affect a nearby water supply well. If this initial assessment indicates the potential to impact the nearby well, then well construction should not proceed at that particular location. CELA further submits that the BMP should also require the upfront development of contingency measures to be undertaken if the construction of the new well adversely affects water supply in the nearby well;

- page 10, "contingency plans": This Chapter indicates that consideration should be given to having contingency plans in place to address unanticipated circumstances if they arise

(i.e. flowing water, explosive gases, unknown contaminants, etc.). However, the manual appears to provide insufficient direction on the precise steps or measures that should be undertaken if these circumstances arise. In the absence of such details, CELA is unaware how well contractors will be detecting and handling the risks and impacts caused by gas, flowing water or unknown contamination;

- page 11, "permits to take water": This Chapter contains an overview of the basic requirements of the MOE's water-taking regime (and discharge approvals) under the OWRA. CELA suggests that it would be also helpful for Chapter 5 to include a similar overview of waste handling requirements imposed under the EPA and Regulation 347.

Chapter 6: Constructing the Hole, Casing & Covering the Test Hole or Dewatering Well

Because of the extensive nature of the subject-matter addressed within Chapter 6, CELA appreciates that this Chapter is, of necessity, lengthy and detailed. This is partly attributable to the fact that the Chapter attempts to describe the regulatory requirements, and then also describes the numerous exemptions from such requirements for test holes and dewatering wells. As noted above, CELA submits that these exemptions should be reviewed and/or removed from Regulation 903. CELA further suggests that the MOE should consider breaking this lengthy chapter down into smaller chapters (i.e. after the "casing" section?).

CELA's specific comments on Chapter 6 may be summarized as follows:

- to enhance the reader's understanding of this Chapter, CELA suggests that it would be useful to make an upfront bolded note in the Chapter description (or the "plainly stated" section) to indicate that there are many regulatory requirements and exemptions discussed within the Chapter. Cross-references to the diagrams towards the end of the chapter would also be helpful for the purposes of understanding the initial structure for test holes or dewatering wells that will be in operation for less than 30 days, less than 180 days, or greater than 180 days. On this point, we note that this Chapter needs to include a diagram for a test hole/dewatering well that will be in operation for less than 180 days;

- the main text of Chapter 6 appears to lack a discussion on deepening test holes that have already been constructed. Thus, the reader is left with no guidance on whether this is a permissible practice, or whether there is a BMP that recommends against this practice;

- page 7, "plainly stated": This portion of Chapter 6 should define the term "new well", and this definition should be included in Chapter 2. Similarly, CELA submits that the phrase "scheduled to be abandoned" should be better explained or clarified in Chapters 2, 6, 7 and 8. For example, does this phrase mean that the well must fully abandoned within 30 or 180 days? If the well contract specifies that the uncased well will be abandoned within 30 days, is it open to a well owner to decide, after the structural stage is complete, that the well will continue to be used beyond the 30 day period? Is it a violation to simply leave the well unused in the ground beyond the 30 day period? On this point, it would be helpful to revise Regulation 903 to specify under what circumstances (if any)

that MOE can approve the continued existence or use of a well after it was scheduled to be abandoned;

- page 21: Assuming that the MOE is not advocating the use of dirty equipment, CELA submits that Chapter 6 should provide additional discussion on cleaning equipment when drilling multiple wells in order to minimize the risk of cross-contamination;

- page 38, "annular space": This term needs to be better explained in this textual discussion so that the reader fully understands the importance of annular space and the seal that goes in it;

- Table 6-4: This table should include a cross-reference to the figures at the end of Chapter 6. This table should also clarify that these rules do not apply to wells that will be constructed and operated for less than 180 days. A reference to the BMP for hole size and annular space would also be helpful;

- page 41, "BMP – annular space": CELA suggests that this BMP should contain a cross-reference to the BMP that discusses annular space and the optimum installation of filter packs. More generally, we are unclear why there is a BMP providing for a minimum size of hole, regardless of the length of time the well be used, whereas Regulation 903 allows a well not to have an annular space if the well is scheduled to be abandoned in less than 180 days. In our view, this policy ambiguity should be reviewed and resolved by the MOE;

- pages 46-47, "well covering": It would be helpful to include some photographs of what would be an acceptable temporary cover;

- page 54: The one-sentence note on this page briefly refers to the need to properly store or dispose of overburden or bedrock samples, but does not summarize the applicable requirements. As discussed above, CELA submits that it would be useful for the manual to include concise information on EPA and/or Regulation 347 requirements which may be applicable to the wells industry;

- page 55: Given the content of this portion of Chapter 6, we would suggest that the sub-heading title should be amended to include "Gas". CELA further suggests that there is a need for a BMP that discusses isolating all zones above the target aquifer during construction in order to prevent contamination, and illustrative examples of how to do this should be provided. The bullet point list of indicators in the third paragraph relates to gas, not "contamination" per se, and should be amended accordingly. We further note that this paragraph emphasizes the importance of being prepared for site-specific conditions that can reasonably be expected; however, we would suggest that it is equally important for the text to discuss the need to be prepared for unanticipated occurrences, such as natural gases. On this point, it is unclear to us whether the gas-related BMPs (or Regulation 903) have considered or integrated provincial operating standards for gas well construction. If not, then CELA submits that these standards should be discussed in both the test holes manual and the water supply wells manual;

- page 59, "casing": In our view, it makes little sense to require a <180 day test hole under O.Reg.153/04 to meet new material casing requirements, but then exempt other test holes or dewatering wells from the same requirements. CELA submits that this is a policy ambiguity that should be reviewed and resolved by the MOE. We further submit that there should be a BMP that prevents uncased wells from going through multiple aquifers or gas environments in order to prevent the uncontrolled release of contaminants, water, or gases. CELA also recommends that consideration be given to developing a BMP that prevents persons from leaving an uncased well site to ensure that nothing gets into the well, or that it does not collapse. More generally, CELA submits that Regulation 903 should be amended by the MOE forthwith to prevent uncased well construction. In our view, uncased wells should only be used to record observations during construction, and then they must be immediately abandoned. Although the manual correctly indicates that the well owner is responsible for preventing intermingling of aquifers via uncased wells, the overall purpose of construction standards is to prevent these problems in the first place. By the time that the well owner's abandonment duty is triggered, the adverse impacts may already be well underway. Accordingly, CELA firmly believes that the MOE must review and remove the exemption for uncased test holes. Moreover, there should be a BMP specifying that casings must be made of new materials that are suitable for the environment in all cases, including wells that are scheduled to be abandoned in less than 180 days. We maintain that it makes no sense to require monitoring wells to use new casing, while other types of test holes or dewatering wells are not subject to the same requirement;

- page 66, "casing materials": CELA submits that the information on this page should be transformed into a BMP, particularly since the MOE is recommending that the materials selected for casing should be able to withstand stresses, corrosion and other operational factors;

- page 86, "well screens": It appears to CELA that there are few requirements for well screens unless it is part of a test hole under O.Reg.153/04. However, the manual does not adequately explain why an O.Reg.153/04 site has more applicable well screen requirements than other test holes;

- page 90, "well screens": CELA understands that there is no minimum depth of a test hole or minimum length of casing, but this page suggests if a layer of sand/gravel is placed around a well screen, then the sand/layer gravel cannot be closer than 2.5 metres from the ground surface. We are unaware of any compelling technical rationale for this requirement, and would suggest that the MOE should review this issue on the basis of sound science and engineering in order to identify what type of minimum depth for a test hole (and casing requirements) should be specified by regulation. Furthermore, the manual seems to discourage the use of unsealed concrete tiles as well screens, but Regulation 903 appears to permit this practice. This is another policy ambiguity that the MOE should review and resolve as soon as possible. Finally, this portion of the manual discusses minimum hole sizes and filling the annular spaces around well screens. In our

view, this important topic should be also addressed in the "plainly stated" section of Chapter 6 and perhaps in notes at appropriate locations in the text.

Chapter 7: Annular Space & Sealing

CELA suggests that the title of Chapter 7 should be changed to "Annular Space & Sealing along the Casing". This is because annular space alongside the well screen is discussed in Chapter 6, as noted above.

In the "key concepts" of Chapter 7, CELA submits that before discussing the purpose of the seal, there should be some text on what can happen if annular space is not created and sealed. We otherwise have no other specific comments on Chapter 7, and we would suggest that much of the general information in Chapters 7 and 8 should be placed within an updated version of the annular space chapter of the Water Supply Wells manual.

More generally, it appears to CELA that the majority of test holes in operation less than 180 days will not have an annular space. Therefore, the general regulatory requirements regarding annular space will be typically inapplicable to these kinds of wells. However, this also means that the disturbed material beside the casing (and outside the casing) may become a pathway for contaminant migration. At the very least, this creates a policy ambiguity wherein the MOE has exempted annular space creation and sealing for wells <180 days, but then suggests BMPs for all wells which recommend creating and sealing an annular space. This problem appears to be compounded by the fact that this <180 day exemption does not apply to monitoring wells established under O.Reg.153/04.

It further appears that wells in operation for more than 180 days can also be exempt from many of the annular space sealing requirements if well drillers place an outer casing in the well. For any well (not just <180 day wells), this outer casing can be of any length. The length and size of the annular space along the inner casing is largely exempt from the regulation (unless there are flowing water conditions). Accordingly, CELA concludes that well drillers (or owners) may be motivated to choose this method in order to save money (i.e. by avoiding the detailed requirements regarding annular space). We are not reassured by the unenforceable BMPs on this topic, or by the well owner's residual duty to properly abandon the well if problems occur. In our submission, annular space construction requirements need to be enacted and enforced regardless of well type in order to protect the well from contaminants. This is another policy matter which should be reviewed and resolved by the MOE with a view towards making appropriate amendments to Regulation 903.

Chapter 8: Multi-Level Monitoring Test Holes

CELA has no specific comments on Chapter 8, but we reiterate and adopt our above-noted comments on Chapter 7's discussion of annular space, sealing and the use of inner/outer casings.

Chapter 9: Completing the Test Hole or Dewatering Well Structure

CELA's specific comments on Chapter 9 may be summarized as follows:

- page 12, "well development": If the test hole or dewatering well uses the natural formation in the annular space around the drilled well, does the well need to be developed? This matter should be further elaborated in the textual discussion and in the "plainly stated" section of Chapter 9. The reason we raise this matter is because of an apparent contradiction between O.Reg. 153/04 (which requires monitoring wells to be developed) and Regulation 903 (which generally exempts test holes from the development process). This policy ambiguity should be reviewed and resolved by the MOE by developing appropriate BMPs and by amending Regulation 903 to require development of all wells at the time of construction in order to protect aquifers;

- page 18, "casing height": It is unclear whether the technical specifications in the second paragraph are regulatory requirements;

- page 21, "flush mounted covers": There appears to be a conflict between the usage of certain well covers and the recommendations in the BMP. In addition, allowing the use of flush mounted covers seems inconsistent with the casing height requirements which are aimed at preventing surface water from lying on top of a well. CELA submits that the BMP should be amended to include a recommendation that wells should be located where the casing can extend above the ground surface, and where the well can be properly covered and protected. In our view, flush mounted well covers should not be allowed since they are subject to breakage and vandalism. Similarly, only in the most exceptional circumstances should a flush-mounted well pit be allowed. These policy matters should be reviewed and resolved by the MOE, and Regulation 903 should be amended to prohibit flush mounted covers. Until such amendments are made, CELA suggests an interim BMP which recommends against flush mounted covers where surface water ponds near the well, or where flooding may occur over the area of the well;

- page 27, "protective covers": CELA has a number of questions on this topic, such as: are covers considered to be well casing? Is the cover supposed to be vermin-proof in order to meet well cap requirements, or does the casing inside the cover need the vermin-proof well cap? The answers to these questions should be set out in Chapter 9;

- page 30, "BMP – encountering gas": This BMP seems aimed at areas "known" to have natural gas, but the BMP should also address what should happen if gas is unexpectedly encountered;

- page 30, "well tags": This discussion should clearly identify who is responsible for obtaining and affixing the well tag for the initial construction of the well. The discussion of well tags for well clusters should clarify the meaning of well clusters.

Chapter 10: Test Hole & Dewatering Well Exemption and Recommended Activity: Disinfection

CELA has no specific comments on Chapter 10, as we generally agree with the provided information and recommended BMPs. However, we suggest that it would be appropriate for the

MOE to reevaluate the policy decision not to require the chlorination of all test holes and dewatering wells for disinfection purposes. As noted throughout Chapter 10, there are numerous test holes and dewatering wells which are not chlorinated.

Chapter 11: Flowing Test Holes & Dewatering Wells

CELA's specific comments about Chapter 11 may be summarized as follows:

- consideration should be given to including photographs of devices that may be placed into small test holes;

- there should be a BMP reminding readers that uncased holes should not be constructed in flowing water environments, and that under no circumstances should wells be constructed deep into a confined flowing well aquifer unless a professional engineer or professional geoscientist provides a detailed design and oversees the operation;

- CELA further submits that the Chapter should include a BMP reminding drillers to always be prepared for flowing conditions (i.e. by having fluids readily available to stop unexpected flows, and by having professionals on standby).

Chapter 12: Equipment Installation

CELA's specific comments on Chapter 12 may be summarized as follows:

- page 16, "sampling and monitoring equipment": It may be useful to add a BMP outlining who should be installing such equipment (see Chapters 3 and 4);

- page 47, "below ground connections": It is unclear why a similar discussion of above ground connections is not provided in the text. Is there a BMP recommending that above ground connections should be also made watertight; if so, how? Is there an ASTM standard, and can examples be provided?

- page 57, "encountering gas": CELA's above-noted comments about Chapters 6 and 9 in relation to gas should also be addressed here in Chapter 12;

- page 57, "well caps and covers": Is a protective cover considered to be a vermin-proof well cap? It may also be helpful to craft a BMP recommending which types of caps should – or should not – be used;

- page 65: The photograph appears out of focus. Again, CELA repeats its previous recommendation that a BMP should be developed to recommend against the use of flush mounted well pit covers and well covers.

Chapter 13: Water Level Measurements, Aquifer Testing & Discharge Water Handling

CELA's only specific comment on Chapter 13 is that it may be desirable to include a BMP that identifies who should be installing the equipment (see Chapters 3 and 4).

Chapter 14: Test Hole & Dewatering Well Maintenance & Repair

CELA's specific comments on Chapter 14 may be summarized as follows:

- as noted above, CELA submits that this Chapter should explain whether (or when) "repairs" can become well "construction", and this explanation should be included in Chapter 2. Similarly, the term "new well" should be explained in Chapter 14 and included in Chapter 2;

- page 25: This text discusses what requirements do not apply to an existing well, but it would be helpful to also describe the applicable requirements for an alteration (or minor alteration) of a test hole or dewatering well. For example, what requirements apply if someone performs a common pumping test on a test hole (or water supply well)? What requirements apply if a person replaces a well cap (i.e. if a cap is replaced during an inspection, is that activity a minor alteration, or is it wholly exempt from regulatory requirements)?

Chapter 15: Well Records, Documentation, Reporting & Tagging

CELA's specific comments on Chapter 15 may be summarized as follows:

- page 10: the note for natural gas in the "plainly stated" section should also be set out in Table 2-3 in Chapter 2. If gas from a landfill poses a hazard (i.e. explosion), should that be reported to the MOE?;

- page 25, "well records for clusters": In order to properly manage Ontario's groundwater resources, CELA submits that one well record should be required for each well that is constructed, altered or abandoned in the province, and the well should be located using the well tag and UTM coordinates as recommended by the BMPs in Chapter 15. In our view, placing one tag for multiple wells may become unduly confusing, particularly if there are multiple clusters on a site. It further appears to CELA that there may be instances where tagging is required but a record does not have to be filed. While a BMP may be generated to address this matter, it appears to CELA that this problem stems from loopholes within Regulation 903. This policy ambiguity should be reviewed and resolved by the MOE as soon as possible.

Chapter 16: Abandonment – When to Plug & Seal Test Holes & Dewatering Wells

CELA has no specific comments on Chapter 16.

Chapter 17: Abandonment: How to Plug & Seal Test Holes & Dewatering Wells

Many well owners may not have the financial resources to deal with problems created by persons working on the abandonment of a well. As discussed above, CELA submits that Regulation 903 should be amended to hold the person doing the abandonment work accountable, rather than the well owner.

CELA further submits that the MOE should not be allowing the filling of interior casings in multi-level monitoring wells. As discussed above in relation to Chapter 8, the exterior space in such casings may not necessarily be properly sealed, and interior casings should be wholly removed before the hole is sealed in order to prevent vertical migration of contaminants. This is another area in which Regulation 903 needs to be reviewed and revised by the MOE.

This Chapter does not adequately address the sealing around the exterior of a casing if there is no annular space sealing material. Not only should this issue be dealt within a BMP, but this is another necessary amendment to Regulation 903 that should be considered forthwith.

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